



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

TB

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/007,274	10/22/2001	Heizaburo Kato	5280-000005	3563

27572 7590 08/12/2003

HARNESS, DICKEY & PIERCE, P.L.C.
P.O. BOX 828
BLOOMFIELD HILLS, MI 48303

EXAMINER

CADUGAN, ERICA E

ART UNIT	PAPER NUMBER
3722	11

DATE MAILED: 08/12/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	10/007,274	KATO, HEIZABURO
	Examiner Erica E Cadugan	Art Unit 3722

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 02 June 2003.

2a) This action is FINAL. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 8-10 and 12-14 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) Claim(s) _____ is/are allowed.

6) Claim(s) 8-10 and 12-14 is/are rejected.

7) Claim(s) _____ is/are objected to.

8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) The proposed drawing correction filed on 20 July 2002 is: a) approved b) disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.

12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.

14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) The translation of the foreign language provisional application has been received.

15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) Notice of References Cited (PTO-892)
2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
4) Interview Summary (PTO-413) Paper No(s). 10.
5) Notice of Informal Patent Application (PTO-152)
6) Other: _____

DETAILED ACTION

Claim Objections

1. Claim 8 is objected to because of the following informalities: in line 9, "said cam flowers" should be --said cam followers--. Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
3. Claims 12-14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 12 depends from canceled claim 11, thus rendering it unclear what limitations are encompassed in claim 12. In the interest of furthering patent prosecution, Examiner is assuming for the purposes of an analysis of the claims with respect to the prior art that claim 12 should properly depend from claim 8. However, this issue still needs to be addressed via an amendment to claim 12.

Claim Rejections - 35 USC § 103

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
5. Claims 8-10 and 12, and 14, 12 and 14 are as best understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over British Patent No. 608,048 (hereinafter '048) in view of U.S. Pat. No. 5,243,869 (Kukowski).

‘048 teaches a rotating table apparatus including a driven shaft (shown extending downwardly from the upper portion of work-carrying plate 1 as viewed in Figure 1) supported by a bearing member 7, which bearing member forms a portion of a “housing” 7. The table is driven in rotation by a worm 3, analogous to the “roller gear cam” of the present invention, which drives a helical wheel 2 that is rigidly connected to the plate 1, wheel 2 is analogous to the “cam followers” of the present invention. Note that the plate 1 has a lower surface (as viewed in Figure 1) that opposes an upper surface of stationary nut 9 (page 2, line 40), for example, “invariably” (since neither 9 nor 1 move vertically as viewed in Figure 1, see page 2, lines 35-46, for example) providing chamber or “space” 24 therebetween. Additionally, ‘048 teaches that “housing” portion or bearing member 7 includes an oil reservoir located within a “gap” therein (Figure 1, also page 2, lines 64-82). Note that ‘048 specifically teaches that the oil reservoir is “linked” to the chamber 24 (page 2, lines 64-82), and also teaches that the oil is used for lubricating the worm 3 and the wheel 2 (page 2, lines 67-88, for example, also Figure 1).

Specifically regarding claim 10, note that stationary nut 9 forms a part of the “housing”, along with bearing member 7 and support 15, for example.

Regarding claim 12, it is noted that the plate 1 taught by ‘048 appears to be capable of performing the functionally claimed “intermittent” rotation, for example, via intermittent actuation of the gearbox that ultimately drives the worm 3 (page 2, lines 11-17 teach about the gearbox driving the worm). Note that no structure of the cam is set forth that requires the intermittent rotation to be as a result of any continuous rotation of the cam, and it is noted that the device is inherently capable of such intermittent actuation of the gearbox, via, for example, manually connecting and disconnecting the gearbox to its driver or power source.

Regarding claim 14, it is noted that '048 sets forth that plate 1 is a "work-carrying plate in a metal cutting machine tool" (p. 1, lines 10-12, for example). In order for the plate to hold the work such that it does not fall off the table when being machined, it is necessary that it be held or fixed to the table by some sort of device, i.e., the forces applied to a workpiece by a machine tool during cutting are great enough to require that the workpiece be held in some way to prevent the workpiece from flying off of the table during the cutting process. Thus, inherently, in order for '048's plate device to be functional with a "metal cutting machine tool" as disclosed, there must be some sort of holding device, which device is considered to be a "chuck".

'048 teaches the worm 3 and wheel 2 drive instead of a "roller gear cam" and "cam followers". Additionally, '048 is silent as to the dimensions of the described "space", and thus does not teach the dimensions set forth in claim 9.

Kukowski teaches a cam operated indexing drive including a cam body 30 and plate member 35 with followers 36 (see Figure 1, for example). Kukowski further teaches that cam operated indexing drives have high mechanical efficiencies and zero backlash (col. 1, lines 24-25, for example).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have substituted the cam operated drive taught by Kukowski for the worm and worm wheel taught by '048 for the purpose of increasing the mechanical efficiency and eliminating any backlash of '048's drive system.

Regarding the dimensions of claim 9, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have made the space whatever size was

desired or expedient, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

6. Claims 8, 10, and 12-13, 12-13 are as best understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pat. No. 4,896,560 (Kato) in view of British Patent No. 608,048 (hereinafter '048).

Kato teaches an indexing device 8 for indexing a turret 30 having cutting tool 32 affixed thereto (Figures 1-2, col. 1, lines 6-21, also col. 5, lines 2-5). Kato's indexing device includes a globoidal cam 36 and cam followers 40 (see Figure 3).

Kato does not teach any sort of lubricating device for keeping the driving parts lubricated.

'048 teaches a rotating table apparatus including a driven shaft (shown extending downwardly from the upper portion of work-carrying plate 1 as viewed in Figure 1) supported by a bearing member 7, which bearing member forms a portion of a "housing" 7. The table is driven in rotation by a worm 3, analogous to the "roller gear cam" of the present invention, which drives a helical wheel 2 that is rigidly connected to the plate 1, wheel 2 is analogous to the "cam followers" of the present invention. Note that the plate 1 has a lower surface (as viewed in Figure 1) that opposes an upper surface of stationary nut 9 (page 2, line 40), for example, "invariably" (since neither 9 nor 1 move vertically as viewed in Figure 1, see page 2, lines 35-46, for example) providing chamber or "space" 24 therebetween. Additionally, '048 teaches that "housing" portion or bearing member 7 includes an oil reservoir located within a "gap" therein (Figure 1, also page 2, lines 64-82). Note that '048 specifically teaches that the oil reservoir is

“linked” to the chamber 24 (page 2, lines 64-82), and also teaches that the oil is used for lubricating the worm 3 and the wheel 2 (page 2, lines 67-88, for example, also Figure 1).

Specifically regarding claim 10, note that stationary nut 9 forms a part of the “housing”, along with bearing member 7 and support 15, for example.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have provided the housing and lubrication system taught by ‘048 to the device taught by Kato for the purpose of increasing the longevity of Kato’s drive device by reducing friction and wear via the provision of the lubrication.

Response to Arguments

7. Applicant's arguments with respect to claims 8-10 and 12-14 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Faxing of Responses to Office Actions and Contact Information

10. In order to reduce pendency and avoid potential delays, TC 3700 is encouraging FAXing of responses to Office Actions directly into the Group at (703) 872-9302 or, for responses after final rejection only, to (703) 872-9303. This practice may be used for filing papers not requiring a fee. It may also be used for filing papers which require a fee by applicants who authorize charges to a PTO deposit account. Please identify the examiner and art unit at the top of your cover sheet. Papers submitted via FAX into TC 3700 will be promptly forwarded to the examiner.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Erica Cadugan whose telephone number is (703) 308-6395. The examiner can normally be reached on Monday through Thursday from 7:30 a.m. to 5:00 p.m., and every other Friday from 7:30 a.m. to 4:00 p.m. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, A.L. Wellington can be reached at (703) 308-2159. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the TC 3700 receptionist whose telephone number is (703) 308-1148.

llc
eec

August 6, 2003


A. L. WELLINGTON
SUPERVISORY ARTIST EXAMINER
TECHNOLOGY CENTER 3700